

Claims

[c1] What is claimed is:

1. An organic light emitting diode (OLED) structure comprising:

a transparent conductive layer disposed on a top surface of a substrate, a width of a bottom surface of the transparent conductive layer being greater than a width of a top surface of the transparent conductive layer;

an organic thin film disposed on the substrate, and the organic thin film covering the transparent conductive layer; and

a metal layer disposed on the organic thin film.

[c2] 2. The structure of claim 1 wherein the substrate comprises a glass substrate, a quartz substrate, or a metal substrate.

[c3] 3. The structure of claim 1 wherein the transparent conductive layer comprises an indium tin oxide (ITO) layer or an indium zinc oxide (IZO) layer, and the transparent conductive layer is used as an anode of the organic light emitting diode.

[c4] 4. The structure of claim 1 wherein a tilt angle greater

than 90 degrees is formed between the top surface of the transparent conductive layer and a sidewall of the transparent conductive layer.

- [c5] 5.The structure of claim 1 wherein a thickness of the transparent conductive layer is smaller than a thickness of the organic thin film.
- [c6] 6.The structure of claim 5 wherein the thickness of the transparent conductive layer is greater than or approximately equal to 400 angstroms (Å).
- [c7] 7.The structure of claim 5 wherein the thickness of the organic thin film is greater than or approximately equal to 1000 angstroms (Å).
- [c8] 8.The structure of claim 1 wherein the organic thin film further comprises a hole transport layer (HTL) disposed on a surface of the transparent conductive layer, an emitting layer (EL) disposed on a surface of the hole transport layer, and an electron transport layer (ETL) disposed on a surface of the emitting layer.
- [c9] 9.The structure of claim 8 further comprising a hole injection layer (HIL) disposed between the transparent conductive layer and the hole transport layer, and an electron injection layer (EIL) disposed between the electron transport layer and the metal layer.

- [c10] 10.The structure of claim 1 wherein the metal layer comprises a magnesium layer (Mg layer), an aluminum layer (Al layer), a lithium layer (Li layer), or an alloy layer, and the metal layer is used as a cathode of the organic light emitting diode.
- [c11] 11.An organic light emitting diode structure comprising:
a transparent conductive layer having a step structure on a top surface thereof disposed on a top surface of a substrate, a width of a bottom surface of the transparent conductive layer being greater than a width of a top surface of the transparent conductive layer;
an organic thin film disposed on the substrate, and the organic thin film covering the transparent conductive layer; and
a metal layer disposed on the organic thin film.
- [c12] 12.The structure of claim 11 wherein the substrate comprises a glass substrate, a quartz substrate, or a metal substrate.
- [c13] 13.The structure of claim 11 wherein the transparent conductive layer comprises an indium tin oxide (ITO) layer or an indium zinc oxide (IZO) layer, and the transparent conductive layer is used as an anode of the organic light emitting diode.

- [c14] 14.The structure of claim 11 wherein a tilt angle approximately equal to 90 degrees is formed on the step structure.
- [c15] 15.The structure of claim 11 wherein a thickness of the transparent conductive layer is smaller than a thickness of the organic thin film.
- [c16] 16.The structure of claim 15 wherein the thickness of the transparent conductive layer is greater than or approximately equal to 400 angstroms (Å), and the thickness of the organic thin film is greater than or approximately equal to 1000 angstroms (Å).
- [c17] 17.The structure of claim 11 wherein the organic thin film further comprises a hole transport layer (HTL) disposed on a surface of the transparent conductive layer, an emitting layer (EL) disposed on a surface of the hole transport layer, and an electron transport layer (ETL) disposed on a surface of the emitting layer.
- [c18] 18.The structure of claim 17 further comprising a hole injection layer (HIL) disposed between the transparent conductive layer and the hole transport layer, and an electron injection layer (EIL) disposed between the electron transport layer and the metal layer.

[c19] 19. The structure of claim 11 wherein the metal layer comprises a magnesium layer (Mg layer), an aluminum layer (Al layer), a lithium layer (Li layer), or an alloy layer, and the metal layer is used as a cathode of the organic light emitting diode.